

The Distribution of Prosthetic Treatments Type, Number, Year Applied and Patients Age and Gender for Patients Applying to the Prosthodontics Department Between 2014-2020

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Abstract

This study contains the distribution of prosthetic treatments' type, number and the year applied as well as their patients' sex and age given to patients who applied to the Ataturk University Faculty of Dentistry Prosthodontic Clinic between the years 2014 and 2020. Out of 202128 treatments administered to patients between the ages of 12 and 98, 104537 treatments were administered to women whilst 97951 treatments were administered to men. Between the ages 0 and 19, 303 treatments were administered to women whilst 119 were administered to men, for ages 20-34, 11541 to women and 8497 to men, for ages 35-49, 38413 to women, 30058 to men, for ages 50-64, 39346 to women, 40217 to men and for 65 years and above, 14934 to women, 18700 to men respectively. Most of the treatments were given to patients between the age of 50 and 64 with a total of 79563 treatments. Most applied treatments were the veneer ceramic restorations. The study is based off of the treatment count of major prosthetic treatments and has been conducted accordingly. The data for the major prosthetic treatments have been initially divided into the following categories: tooth supported fixed dental prostheses, removable partial dentures, total prosthetics, implant supported fixed dentures, implant supported removable dentures and immediate dentures.

Keywords: Denture types, patient distribution, prosthetic treatment

2014-2020 Yılları Arasında Protetik Diş Tedavisi Anabilim Dalına Başvuran Hastalara Uygulanan Tedavilerin Yaşa, Cinsiyete ve Yıllara Göre Dağılımının İncelenmesi

Özet

Bu çalışma; 2014-2020 yılları arasında yedi yıl boyunca Atatürk Üniversitesi Diş Hekimliği Fakültesi Protetik Diş Tedavisi kliniğine başvuran hastalara uygulanan protetik tedavi şekillerini, protetik işlem sayılarını, yıllara, cinsiyete ve yaşa göre dağılımını içermektedir. Kliniğimize başvuran hastaların yaşları; 12-98 arasında olup, toplam 202128 işlemden 104537 işlem kadın, 97591 işlem erkektir. Yaş grupları olarak 0-19 yaş aralığında 303 işlem kadın 119 işlem erkek, 20-34 yaş aralığında 11541 işlem kadın 8497 işlem erkek, 35-49 yaş aralığında 38413 işlem kadın 30058 işlem erkek, 50-64 yaş aralığı 39.346 işlem kadın 40217 işlem erkek ve 65 yaş ve üzeri 14934 işlem kadın 18700 işlem erkek hastalar olmuştur. Başvuranlar arasında hastalara en fazla 79563'le 50-64 yaş aralığı, en çok uygulanan protez tipi ise veneer seramik kuron protezler olmuştur. Çalışmada uygulanan majör protetik tedavilerin işlem sayıları esas olarak incelemeye tabi tutulmuştur. Uygulanan majör protetik tedaviler ile ilgili veriler öncelikle; diş destekli sabit protezler, hareketli bölümlü protezler, tam protezler, implant destekli sabit protezler, implant destekli hareketli protez ve immediate protez uygulamaları olarak gruplara ayrılmıştır.

Anahtar Kelimeler: Dental protez tipleri, hasta dağılımı, protetik tedavi

1. Introduction

Prosthodontics is a dental specialty concerned with the diagnosis, treatment planning, and rehabilitation of patients suffering from partial or complete edentulism by utilizing biocompatible materials. This field focuses on restoring oral function, comfort, appearance, and health. It is one of the fundamental branches of dentistry. Tooth loss or tissue loss resulting from dental issues can lead to problems in aesthetics, speech, mastication, and nutrition, extending to social and emotional difficulties, thereby directly affecting the patient's quality of life negatively [1]. It is a health issue that negatively impacts the quality of life, ranging from problems related to aesthetics, speech, chewing, and nutrition, to challenges in social relationships and emotional distress [2, 3].

In developed countries, the prevalence and extent of tooth loss have significantly decreased in recent years [4-7]. The incidence of edentulism has decreased by approximately 4-10% per decade [6, 7]. With the improvement of living conditions through the advancement of technology and science, the elderly population has shown a growing trend both globally and in our country. The increasing elderly population, which will continue to rise dramatically in the coming years, remains the primary reason for the high prevalence of edentulism [6]. As a result, prosthetic care is common in many European countries, especially among the elderly [8]. Furthermore, correlations between national welfare, irregular-to-regular dental visits, rural residency, age, gender, education, and the prevalence of edentulism and prosthetic care have also been demonstrated [6, 9].

The primary goal of prosthetic treatment is to replace missing teeth in partially or completely edentulous patients, restore function and aesthetics, and preserve the health of the remaining oral tissues. Prosthetic treatment combines various clinical and laboratory procedures that lead to the placement of either fixed (crowns and bridges) or removable (partial and complete) prostheses [10]. In principle, treatment with various types of removable prostheses is generally less successful compared to fixed prostheses. Therefore, removable prosthesis treatment is indicated only when fixed prosthesis treatment on teeth or dental implants is excluded due to clinical or financial factors [11, 12]. In recent years, it has been proven that removable prostheses supported by dental implants are a highly successful form of prosthetic treatment for edentulous patients, and their use is steadily increasing. However, due to increased complexity and higher costs, they are significantly less common than conventional prosthetic treatments without dental implants [13, 14].

Modern medicine aims to continuously improve the quality of human life, striving to maintain the highest level of comfort for individuals in both general health and oral health, especially as life expectancy increases. Oral and dental health problems are among the most common public health issues worldwide. A large portion of individuals are affected by these problems throughout their lives [15, 16].

Tooth loss significantly affects an individual's aesthetics, function, and phonation. In modern dentistry, dental-supported fixed prostheses, removable prostheses, and implant-supported

fixed or removable prostheses are utilized to rehabilitate tooth deficiencies, taking into account the needs and expectations of the patient [14, 17, 18].

In Turkey, the population aged 65 and over, considered the elderly population, was 6,192,962 in 2014, and increased by 16% over the following five years, reaching 7,186,204 in 2018. The proportion of the elderly population within the total population rose from 8% in 2014 to 8.8% in 2018. The population aged 65 and over, considered as the elderly population, was 7,186,204 in 2018. Over the past five years, it increased by 21.4%, reaching 8,722,806 in 2023. The proportion of the elderly population within the total population rose from 8.8% in 2018 to 10.2% in 2023. In 2023, 44.5% of the elderly population consisted of men, while 55.5% were women. According to population projections, the proportion of the elderly population is expected to reach 12.9% in 2030, 16.3% in 2040, 22.6% in 2060, and 25.6% in 2080 [19].

Problems with the overall appearance of teeth are one of the most significant factors impacting individuals' social lives. Teeth that are aesthetically pleasing and harmoniously aligned when smiling positively affect a person's life and are one of the most evident signs of personal care. A pleasant smile significantly enhances communication and self-confidence, contributing to greater success and happiness in both professional and personal life. Teeth are considered an inseparable part of beauty. Missing teeth not only cause functional and structural problems but also affect individuals' psychology and social interactions [20].

It is important to understand the causes and patterns of tooth loss in the population for the planning of dental health services. Findings indicating changes in the level of edentulism within the population and the reasons for tooth loss serve as a guide in the appropriate preparation of national oral health service planning [21].

In the study, the distribution of major prosthetic treatment modalities applied to patients who presented to our clinic between 2014 and 2020 was analyzed over a seven-year period, categorized by year, gender, and age. The aim was to determine the types of treatments administered to patients and the proportions in which these treatments were provided.

2. Material and Method

The study was approved by the Ethics Committee of the Dean's Office of the Faculty of Dentistry of Ataturk University (Decision No. 2022-99). In the study, the ages of patients who applied to the Department of Prosthetic Dentistry at the faculty between 2014 and 2020 ranged from 12 to 98 years. A total of 22,348 patients visited the clinic, and 202,128 prosthetic procedures were performed, with 104,537 procedures carried out on female patients and 97,591 on male patients. Among the patients, the distribution by age groups is as follows:

- In the 0-19 age range, there were 303 procedures for females and 119 for males.
- In the 20-34 age range, 11,541 procedures were performed on females and 8,497 on males.
- In the 35-49 age range, there were 38,413 procedures for females and 30,058 for males.

- In the 50-64 age range, 39,346 procedures were performed on females and 40,217 on males.
- For patients aged 65 and above, there were 14,934 procedures for females and 18,700 for males.

The data obtained from the evaluation of protocol records of patients who presented between 2014 and 2020 were analyzed to assess the distribution of treatments performed by year, categorized by age and gender.

The data related to the major prosthetic treatments performed were initially categorized into fixed prostheses, removable partial dentures, complete dentures, implant-supported fixed prostheses, implant-supported removable prostheses, and immediate denture applications. Fixed prostheses included metal-ceramic restorations, full ceramic restorations, acrylic veneer restorations, precision-retained crowns, single-piece cast crown restorations, laminate veneer composite restorations, Maryland adhesive restorations, and zirconia restorations. Removable partial dentures were classified into acrylic and metal types, while complete dentures were also categorized as acrylic and metal. Additionally, implant-supported fixed prostheses, implant-supported removable prostheses, and immediate denture applications were evaluated as separate groups.

Descriptive statistics were performed for all variables. The normality of the variables was assessed using the Kolmogorov-Smirnov test. For variables that exhibited a normal distribution, descriptive analyses were conducted using the mean and standard deviation, while median and minimum-maximum values were used for variables that did not show a normal distribution. When making intergroup comparisons by year, the One-Way ANOVA test was applied for data that demonstrated normal distribution, whereas the Kruskal-Wallis test was utilized for data that did not. The Chi-Square test was employed for the evaluation of categorical data. A statistical significance level of $p < 0.05$ was accepted.

Statistical analyses were performed using SPSS 22.0 (Statistical Package for Social Sciences for Windows version 22.0; IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. IBM Corp. Armonk, NY, USA).

3. Results and Discussion

The distribution of patients who presented to the clinic between 2014 and 2020 by gender and age, the proportions of the prostheses performed, and the total amounts of treatment administered to female and male patients across the years were evaluated using graphs. Among the procedures conducted, the most frequently performed treatments in terms of both workload and procedural intensity were dental-supported fixed crowns and bridges, implant-supported crowns and bridges, complete dentures, removable partial dentures, implant-supported removable prostheses, and immediate dentures. A total of 81,037 procedures were included in the study.

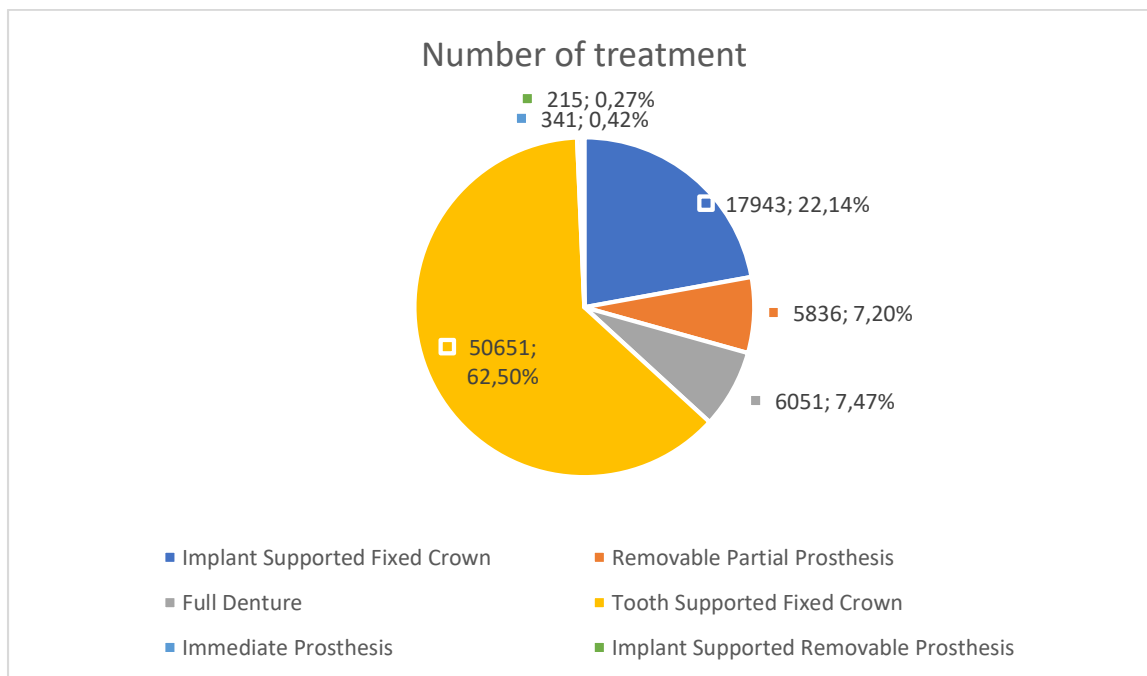


Figure 1. Distribution of major prosthetic treatments applied to patients.

In Figure 1, the distribution of major prosthetic treatments applied to patients is presented. Among the major prosthetic treatments administered to the patients, the highest proportion is 50,651 (62.50%) for dental-supported fixed crown and bridge prostheses, followed by 17,943 (22.14%) for implant-supported fixed crown and bridge prostheses, 6,051 (7.47%) for complete dentures, 5,836 (7.20%) for removable partial dentures, 341 (0.42%) for immediate dentures, and 215 (0.27%) for implant-supported removable prostheses.

In patients who received tooth-supported fixed crown and bridge prostheses, the overall average age is 46.86, with an average age of 47.59 for male patients and 46.20 for female patients. In patients who received implant-supported fixed crown and bridge prostheses, the overall average age is 47.41, with an average age of 49.38 for male patients and 45.38 for female patients. For patients who received complete dentures, the overall average age is 65.48, with an average age of 65.53 for male patients and 65.42 for female patients. In patients who received removable partial dentures, the overall average age is 58.05, with an average age of 58.71 for male patients and 57.47 for female patients. In patients who received implant-supported removable prostheses, the overall average age is 63.81, with an average age of 65.52 for male patients and 62.47 for female patients. For patients who received immediate dentures, the overall average age is 53.87, with an average age of 53.92 for male patients and 53.82 for female patients.

As seen in Figure 1, the number of procedures performed for implant and tooth-supported fixed prostheses was 68,594 (84.64%), while the number of removable prostheses was 12,443 (15.36%).

Table 1. Age distribution of patients who underwent major prosthetic procedures in the clinic.

	Min.	Max.	Average Age	Average Man	Average Woman
Tooth-Supported Fixed Crown	14	92	46,86	47,59	46,20
Implant Supported Fixed Crown	17	92	47,41	49,38	45,38
Full Denture	20	97	65,48	65,53	65,42
Removable Partial Prosthesis	22	98	58,05	57,47	58,71
Implant Supported Removable Prosthesis	26	89	63,81	65,52	62,47
Immediate Prosthesis	20	91	53,87	53,92	53,82

When comparing the number of major treatment procedures performed on all patients included in the study by gender, a statistically significant difference was found between women and men ($p < 0.001$) (Figure 2).

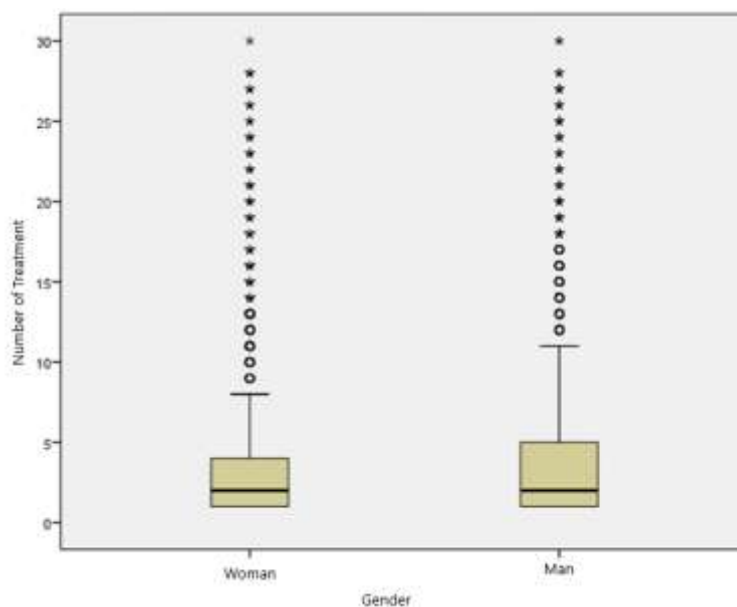


Figure 2. Comparison of the number of procedures performed between female and male patients.

A statistically significant difference was found when comparing the number of procedures performed on patients by year ($p < 0.001$) (Figure 3).

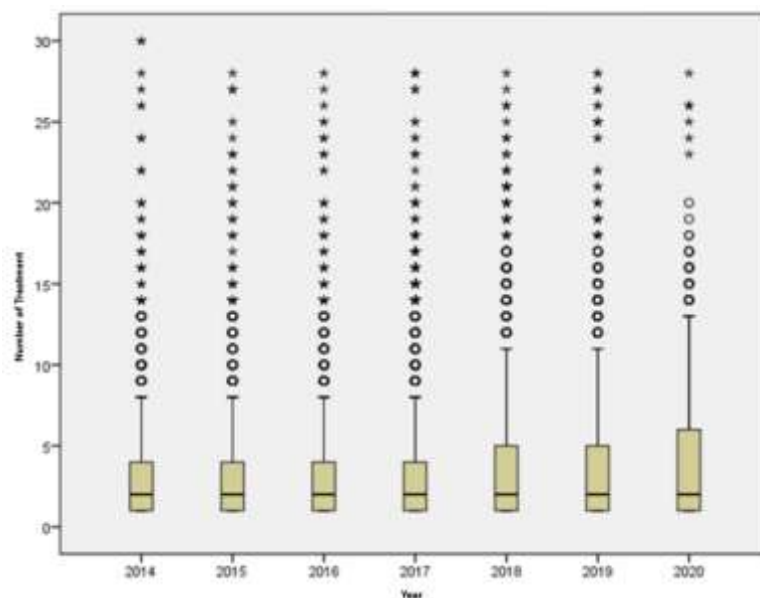


Figure 3. Comparison of the number of procedures performed by year.

When comparing the genders of the patients included in the study by year, no significant difference was found between the groups (p = 0.966).

Table 2. Comparison of patients' demographic data and the number of procedures performed by year.

	2014	2015	2016	2017	2018	2019	2020	P
Patient	2277	2848	2713	4202	4256	4394	1657	
Average Age ± S.S	52.9±14.5	52.7±15	51.6±15.3	52.4±14.7	51.4±14.2	51.5±13.9	49.9±13.3	<0.001
Gender (M/W)	1170/1107	1467/1381	1407/1306	2132/2070	2197/2059	2256/2138	839/818	0.966
Treatment Medyan (min-max)	2(1-30)	2(1-28)	2(1-28)	2(1-28)	2(1-28)	2(1-28)	2(1-28)	<0.001

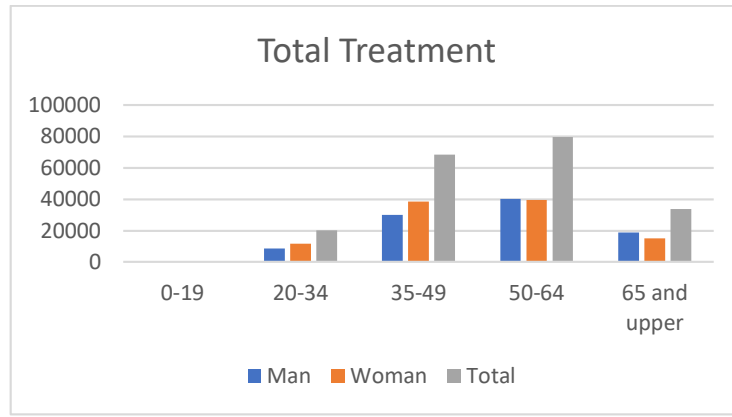


Figure 4. Distribution of the total number of prosthetic procedures performed between 2014 and 2020 by gender, age range, and overall total.

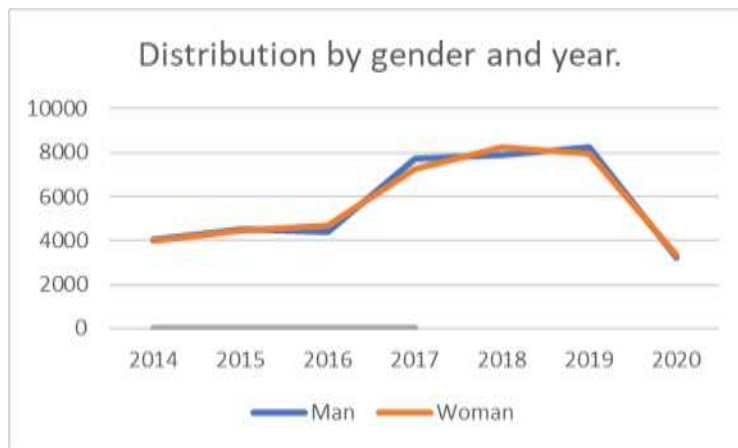


Figure 5. Distribution of total prosthetic procedures by gender and year.

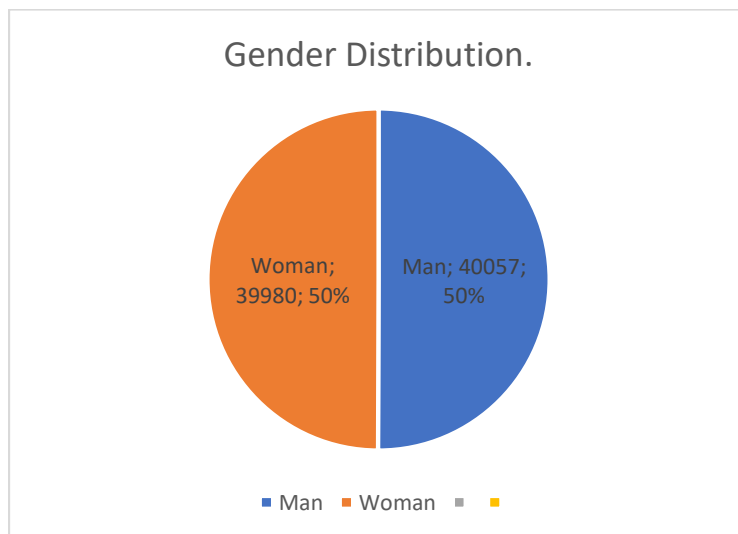


Figure 6. Distribution of the number of procedures performed on patients receiving major prosthetic treatment in the clinic by gender.

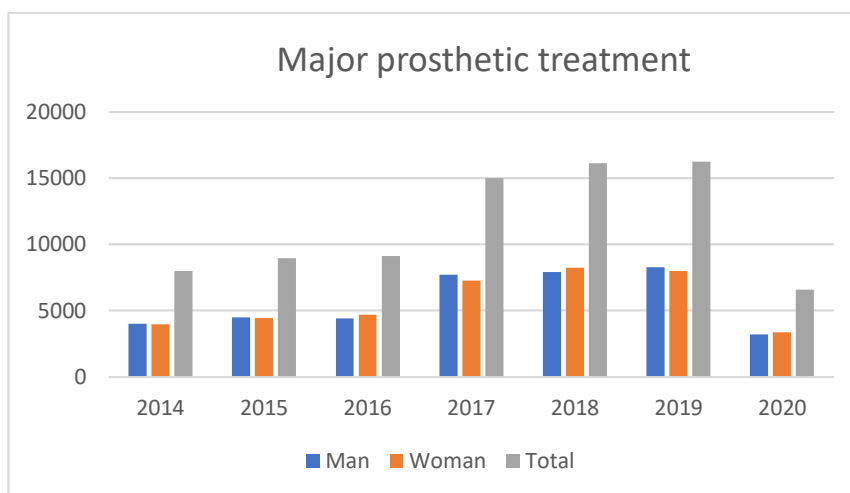


Figure 7. Distribution of the number of major prosthetic treatment procedures performed between 2014 and 2020 by gender and overall total.

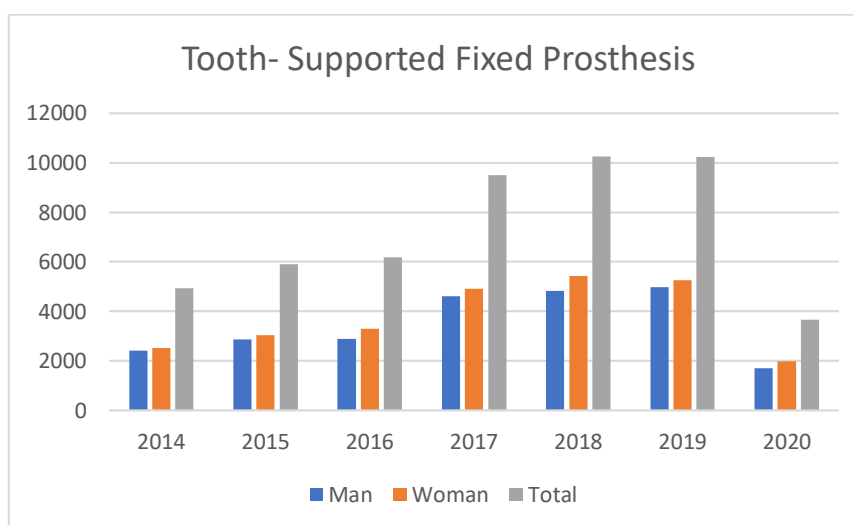


Figure 8. Distribution of the number of dental-supported fixed crown and bridge prosthesis procedures performed between 2014 and 2020 by year, gender, and overall total.

The distributions of dental-supported fixed crown and bridge prosthesis applications by year are shown in the graph.

Between 2014 and 2016, a similar number of procedures were performed, followed by an increase in 2017, 2018, and 2019, with a noticeable decrease in 2020 compared to all previous years. In the procedures performed between 2014 and 2020, the number of procedures for female patients was relatively higher each year. The highest number of dental-supported fixed crown and bridge prosthesis procedures was performed in 2018 and 2019.

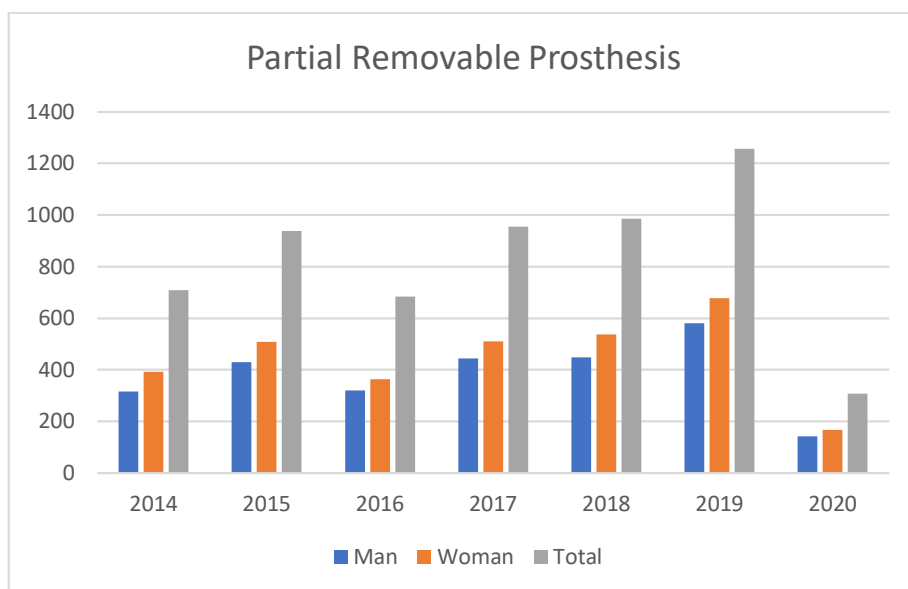


Figure 9. Distribution of removable partial denture applications between 2014 and 2020 by year, gender, and overall total.

The distributions of removable partial denture applications by year are shown in the graph.

Between 2014 and 2016, a similar number of procedures were performed, followed by an increase in 2015, 2017, 2018, and 2019, a slight decrease in 2016, and a noticeable decline in 2020 compared to all previous years. In the procedures performed between 2014 and 2020, the number of procedures for female patients was relatively higher each year.

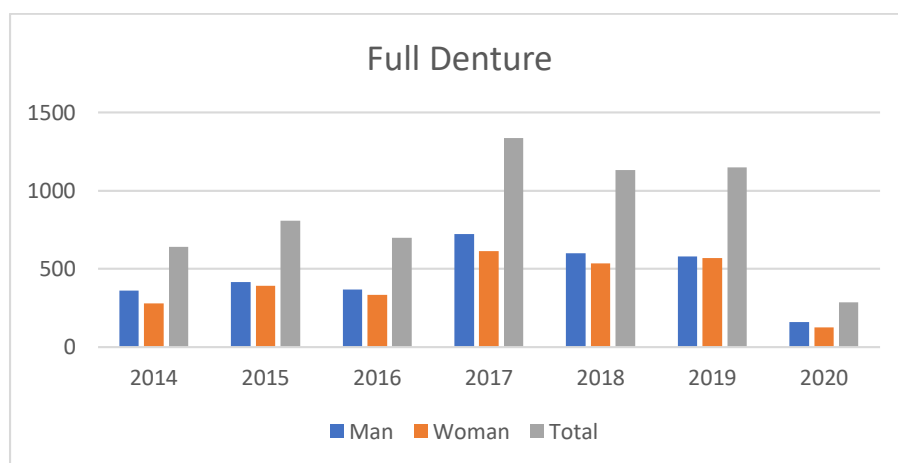


Figure 10. Distribution of complete denture applications between 2014 and 2020 by year, gender, and overall total.

The distributions of complete denture applications by year are shown in the graph.

Between 2014 and 2016, a similar number of procedures were performed, followed by an increase in 2017, 2018, and 2019, with a noticeable decline in 2020 compared to all previous years. In the procedures performed between 2014 and 2020, the number of procedures for male

patients was relatively higher each year. The highest as 1337 number of complete denture procedures was performed in 2017.

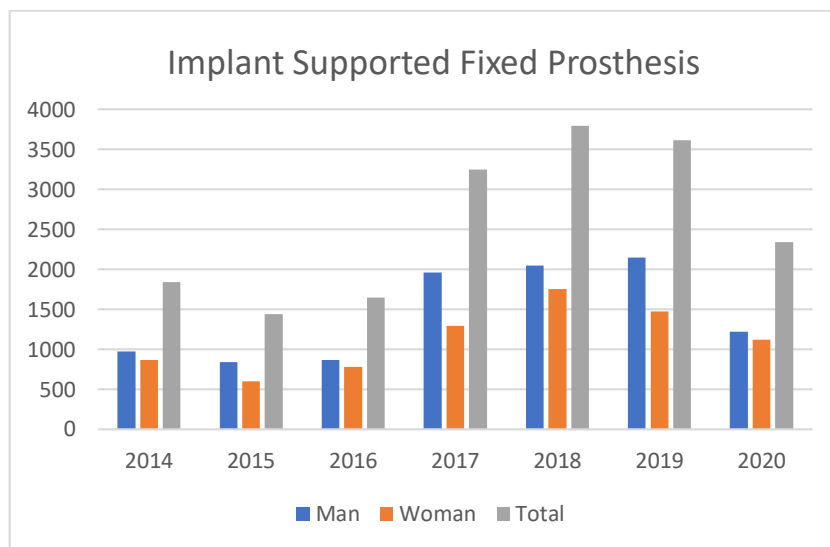


Figure 11. Distribution of implant-supported fixed crown and bridge prosthesis applications between 2014 and 2020 by year, gender, and overall total.

The distributions of implant-supported fixed crown and bridge prosthesis applications by year are shown in the graph.

Between 2014 and 2016, a similar number of procedures were performed, with a subsequent increase in 2017, 2018, and 2019, followed by a noticeable decline in 2020. In all years from

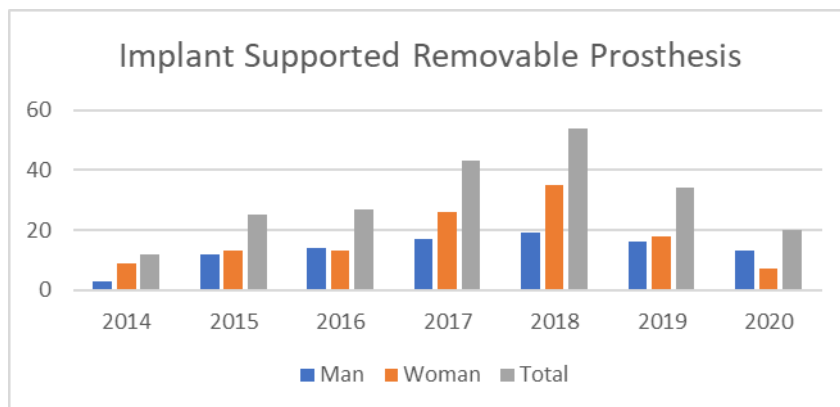


Figure 12. Distribution of implant-supported removable prosthesis applications between 2014 and 2020 by year, gender, and overall total.

The distributions of implant-supported removable prosthesis applications by year are shown in the graph.

2014 to 2020, the number of procedures performed on male patients was higher than that of female patients. Specifically, in 2014, there were 971 procedures for males and 870 for females; in 2015, 844 for males and 600 for females; in 2016, 869 for males and 780 for females; in

2017, 1,959 for males and 1,292 for females; in 2018, 2,048 for males and 1,752 for females; in 2019, 2,145 for males and 1,474 for females; and in 2020, 1,220 for males and 1,122 for females.

From 2014 to 2018, there was a consistent increase in the number of procedures, followed by a decrease from 2019 to 2020. The number of procedures varied by gender, with the highest as 54 number of procedures performed in 2018 for implant-supported removable prostheses.

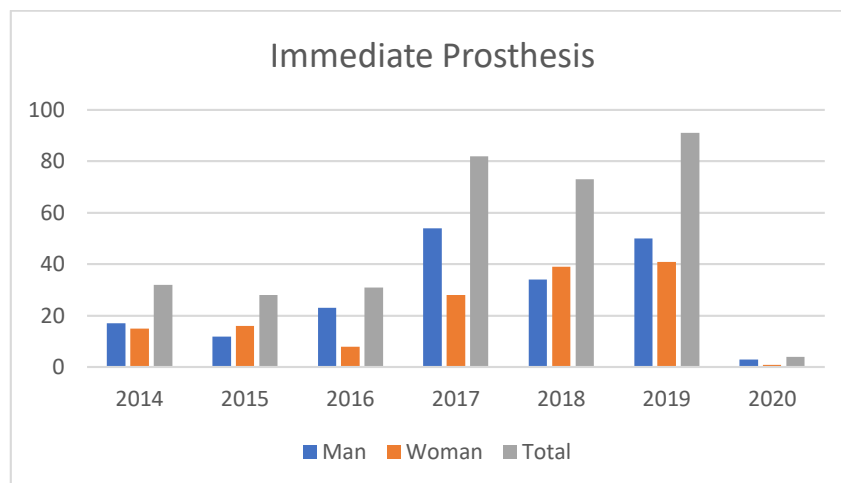


Figure 13. Distribution of immediate prosthesis applications between 2014 and 2020 by year, gender, and overall total.

In the study, we examined the distribution of procedures performed on patients receiving treatment at the Prosthetic Dentistry Clinic of Atatürk University Faculty of Dentistry according to age, gender, and year, as well as the types of prosthetic procedures performed.

Data on prosthetic care in different countries, environments, and patient groups can be particularly relevant for everyone involved in health service planning and organization, as well as in health education[14, 22].

Oral and dental health are determinants of overall health status and are directly related to quality of life[23].

Bayındır et Al. [29] examined the distribution of prosthesis types applied to 19,410 patients at the Department of Prosthetic Dentistry of Atatürk University Faculty of Dentistry between 1988 and 2000. The most commonly used types of prostheses were reported as total prostheses at 19.59%, crowns at 15.63%, and bridge prostheses at 15.10%. The rate of removable partial dentures was reported as 12.61%. In the study, crowns and bridge prostheses were categorized into two types: implant-supported and tooth-supported fixed crowns and bridges. In the findings, the proportions were as follows: tooth-supported fixed prosthesis patients at 62.50%, implant-supported fixed crowns and bridge prostheses at 22.14%, total prostheses at 7.47%, removable partial dentures at 7.20%, immediate prostheses at 0.42%, and implant-supported removable prostheses at 0.27%. From this perspective, it can be concluded that, similar to the findings of Bayındır and colleagues [29], crown and bridge prostheses were the most frequently

performed types of prostheses in the study. However, the number of procedures for removable partial dentures and total prostheses has decreased compared to the proportions reported by Bayındır et al. [29] for the years 1988-2000. This decrease is attributed to the fact that implant-supported prostheses have become an alternative to removable partial and total dentures. In the same study, the average age of patients using total prostheses was found to be 50.02 years for males and 53.34 years for females, whereas in the study, the average age of patients using total prostheses was 65.53 years for males and 65.42 years for females. Similarly, in the earlier study, the average age of patients using removable partial dentures was 43.78 years for males and 39.28 years for females, while in the study, the average age of patients using removable partial dentures was 57.47 years for males and 58.71 years for females.

The results of a study made by Akin et al. [30] on 615 patients at the Department of Prosthetic Dentistry of Cumhuriyet University Faculty of Dentistry indicate that the distribution of patients for prosthetic treatments was as follows: 43.40% received fixed prostheses, while 56.6% received removable prostheses (with 32.9% being partial dentures, 16.1% total dentures, and 7.6% consisting of unilateral total and opposing partial denture cases). In the study, these proportions, in terms of the number of procedures, were as follows: 62.5% for tooth-supported fixed prosthesis patients, 22.14% for implant-supported fixed crowns, 7.47% for total prostheses, 7.20% for removable partial dentures, 0.42% for immediate prostheses, and 0.27% for implant-supported removable prostheses. The findings of Akin and colleagues [30] show a partial similarity to the study in terms of ranking. However, the ages of the patients presenting to the clinic ranged from 12 to 98 years. Out of a total of 202,128 procedures, 104,537 were performed on female patients, while 97,591 were performed on male patients.

In their study, Aydemir and Ceylan [31] reported that among patients receiving prosthetics, 53% had fixed prostheses, 17.07% had partial prostheses, and 29.26% had total prostheses. They also argued that, unlike age, gender did not significantly affect the type and necessity of prosthetic treatment. In the study, however, when examining the number of procedures performed, it was found that 84.64% of patients received fixed prostheses, while 15.36% received removable prostheses. A statistical comparison of the major treatment procedures performed on all patients included in the study revealed a significant difference between women and men ($P < 0.001$).

In the study by Bulucu et al. [32], which examined the distribution of prosthesis types used by a total of 203 patients who visited Ondokuz Mayıs University Faculty of Dentistry, it was found that, consistent with the findings, patients had the highest need for fixed prostheses and the least need for total prostheses.

In the study conducted by Lin et al. [33] on 1,515 individuals in Southern China, it was reported that 35.7% of individuals were treated with fixed prostheses, 16.5% with removable partial dentures, and 10.2% with complete dentures. These proportions show similarities in ranking with the results of the study.

In the end of 2019, a new strain of coronavirus (2019-nCoV) emerged in Wuhan, China, causing the spread of the COVID-19 pandemic worldwide. The virus began to spread in China in

January 2020 and has since spread to many other countries. On 11 March 2020, the World Health Organization (WHO) declared a global pandemic after 118,319 coronavirus cases and 4,292 deaths were reported worldwide [34]. This situation revealed that the ventilation infrastructure of university dental hospitals was not adequately prepared for an airborne outbreak, and the generation of aerosols during dental treatments has made these settings among the highest-risk areas for droplet-transmitted infections [35, 36]. As a result, patients deferred non-urgent prosthetic dental treatments during this period. The impact of the COVID-19 pandemic, which affected both the world and our country in 2020, on interventional procedures has been clearly documented in data. Notably, fixed crown and bridge restorations, which are associated with high aerosol production, saw a marked decline. The number of fixed crown and bridge procedures decreased from 10,220 in 2019 to 3,659 in 2020. The most significant reduction was observed in fixed dental crown and bridge restorations, followed by implant-supported fixed crowns. Other procedures experienced comparatively smaller declines.

4. Conclusion and Recommendations

In the research, the aim was to examine the distribution of major prosthetic procedures performed on patients treated at the Prosthetic Dentistry Clinic of Atatürk University Faculty of Dentistry. The results of the data analysis can be summarized as follows:

1. When examining the distribution of procedures performed on patients between 2014 and 2020, it was observed that the most frequently applied prosthetic procedure was fixed dental crowns and bridge prostheses (including metal-supported ceramic restorations, all-ceramic restorations, acrylic veneer restorations, precision attachment crowns, single-piece cast crown restorations, laminate veneer composite restorations, Maryland adhesive restorations, and zirconium dioxide restorations) with a total of 50,651 (62.50%). The other fixed prosthetic restorations were implant-supported fixed crowns and bridge prostheses, totaling 17,943 (22.14%). The total number of fixed restorations was 68,594 (84.64%).

2. Among removable prostheses, the most frequently applied type was complete dentures at 6,051 (7.47%), followed by removable partial dentures at 5,836 (7.20%), immediate dentures at 341 (0.42%), and implant-supported removable dentures at 215 (0.27%).

3. It was seen that the most frequently performed procedure among other prosthetic treatments was crown removal at 26,516, the second most was temporary crowns at 10,717, and the third was repair procedures, followed by night guards, occlusal wear, and various other prosthetic procedures.

4. In the cases of complete dentures and implant-supported fixed crown bridge procedures, a higher number of procedures were performed on male patients compared to female patients.

However, it was observed that fixed crown bridge prostheses and removable partial dentures were applied in larger numbers to female patients.

5. The effect of the COVID-19 pandemic, which has impacted the entire world and the country in 2020, was clearly observed in the graphs depicting its impact on interventional procedures. Notably, there was a significant decline in fixed crown bridge restorations, which are associated with high aerosol production.

6. When the distribution of patient numbers over the years was examined, an increase in the number of patients was observed between 2016 and 2017, followed by a decrease in 2020. The number of fixed crown and bridge procedures decreased from 10,220 in 2019 to 3,659 in 2020. Similarly, the number of implant-supported fixed crown and bridge procedures dropped from 3,619 in 2019 to 2,342 in 2020. The most significant decline was seen in fixed dental crown bridge restorations, followed by implant-supported fixed crowns. The decline in other procedures was relatively less.

Ethics in Publishing

This study was approved by the Ethics Committee of the Faculty of Dentistry, Atatürk University (Decision No: 99, Date: December 29, 2022).

Author Contributions:

Bayındır F.: Study design, supervision of the research process, evaluation of results, and critical revision of the manuscript.

Oktay F.: Data collection, statistical analysis, interpretation of the results, and manuscript writing.

Kürüm M.: Data organization, review of clinical records, and verification of the results.

All authors have read and approved the final version of the manuscript.

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